BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Engineering (360 GLH) 601/7584/9 Pearson BTEC International Level 3 Foundation Diploma in Engineering (540 GLH) 601/7591/6 Pearson BTEC International Level 3 Diploma in Engineering (720 GLH) 601/7580/1 Pearson BTEC International Level 3 Diploma in Electrical and Electronic Engineering (720 GLH) 601/7579/5 Pearson BTEC International Level 3 Diploma in Mechanical Engineering (720 GLH) 601/7583/7 Pearson BTEC International Level 3 Diploma in Manufacturing Engineering (720 GLH) 601/7582/5 Pearson BTEC International Level 3 Extended Diploma in Engineering (1080 GLH) 601/7588/6 Pearson BTEC International Level 3 Extended Diploma in Electrical and Electronic Engineering (1080 GLH) 601/7587/4 Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering (1080 GLH) 601/7590/4 Pearson BTEC International Level 3 Extended Diploma in Computer Engineering (1080 GLH) 601/7586/2 Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering (1080 GLH) 601/7589/8
Unit number and title	**Unit 30: Mechanical Measurement and Inspection Technology**
Learning aim(s)	**A:** Explore the principles applied to mechanical measurements and inspection methods as used in industry
Assignment title	Applied principles of mechanical measurement and inspection methods
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are a first year technical apprentice and you have been asked by your supervisor to contribute to the quality standards for a particular product by producing a report that focuses on the use of limit gauges, analyses the use of slip gauges when applied to the design of limit gauges, and evaluates their design.

<table>
<tr><td>Task 1</td><td>Applied principles of mechanical measurement and inspection methods
You are to produce an evaluative report that considers the design of four different product features.
The four different features will include:
A. a hole that will be used to give a "close running fit" (H8) on a 25mm diameter using the hole basis,
B. a shaft that will combine with a hole to give a "close running fit" (f7) on a 25mm diameter using the hole basis
C. a slot of 20mm width with a tolerance of ±0.05mm,
D. a hole that has a 5 degree taper and 55mm large diameter and a length of 65mm.
The report must include the following:
1) evidence of research into the standards that apply to the features that need to be gauged,
2) evidence of research regarding suitable limit gauges for each of the features that are listed above,
3) a design for a limit gauge for each of the features listed, that show the sizes and tolerances of the gauges, that employ "Taylor's principle".
4) an evaluation of the designs in respect of their fitness for purpose and the use of slip gauges as a reference to the standard.
The report should be written in clear, technical language throughout.</td></tr>
<tr><td>Checklist of evidence required</td><td>1) A detailed report.</td></tr>
<tr><td colspan="2">Criteria covered by this task:</td></tr>
<tr><td>Unit/Criteria reference</td><td>To achieve the criteria you must show that you are able to:</td></tr>
<tr><td>30/A.D1</td><td>Evaluate, using language that is technically correct and of a high standard, the design of limit gauges that are fit for purpose and rely on the principles of limits and fits, tolerances and the use of slip gauges as a reference to the standard.</td></tr>
<tr><td>30/A.M1</td><td>Analyse, including the use of slip gauges, how different limit gauges rely on the principles of limits and fits and tolerances.</td></tr>
<tr><td>30/A.P1</td><td>Apply the principles of limits and fits and tolerances to design a range of limit gauges.</td></tr>
<tr><td>Sources of information to support you with this Assignment</td><td>Drake P (1999) Dimensioning and Tolerancing Handbook McGraw-Hill, ISBN 0070181314
Griffith G. 2001 Geometric Dimensioning and Tolerancing: Applications and Inspection Prentice Hall, ISBN 9780130604637
Timings R. L. 2002 Fundamentals of Engineering Newnes, ISBN 0750656093</td></tr>
</table>

Note to assessor:

Scenario	The scenario needs to give a rationale for the activity and should be as realistic as possible.
Task 1	Whilst this question is quite specific there is a lot of scope for the centre to chose the features to suit what they have available and because it is a report there is enough to differentiate between learners. It may also be that an industrial partner can be utilised to give the exercise realism by relating the need to gauge sizes to an actual component.